

The Linux Foundation Certification Candidate Handbook

for

**Linux Foundation Certified System Administrator (LFCS)
&
Linux Foundation Certified System Engineer (LFCE)**

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Email:

certificationsupport@linuxfoundation.org

Mail:

1 Letterman Dr., Suite D4700
San Francisco, CA 94129
Phone/Fax: +1 415 723 9709

Web:

<http://training.linuxfoundation.org/certification>

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Table of Contents

[Table of Contents](#)

[Overview](#)

[About The Linux Foundation Certification Program](#)

[Scope of Certifications](#)

[Candidate Requirements](#)

[Testing Equipment: Hardware and Environment](#)

[Hardware Compatibility Check](#)

[Candidate Identification and Authentication](#)

[Sanctioned Countries](#)

[Eligibility](#)

[Age](#)

[Accommodations for Special Needs](#)

[Statement of Non-Discrimination](#)

[Certification and Confidentiality Agreement](#)

[Exam Registration](#)

[Exam Fees and Payment](#)

[Refund Policy](#)

[Refund Process](#)

[Distribution Selection](#)

[My Portal](#)

[Status Settings for Certifications](#)

[Exam Prep Checklist](#)

[Register for Exam](#)

[Check System Requirements](#)

[Schedule Exam](#)

[Canceling or Rescheduling](#)

[Get Candidate Handbook](#)

[Verify Name](#)

[Important Tips](#)

[Take Exam](#)

[Exam Info Panel](#)

[Certification Info Panel](#)

[Exam Description](#)

[Launching Exam](#)

[Reporting Issues with Launching Exam](#)

[Exam Console Format](#)

[Guidelines and Tips for Exam Console Functions in Top Menu Bar](#)

[Guidelines and Tips for Use of the Content Panel](#)

[LFCS:](#)

[LFCE:](#)

[Guidelines and Tips for Use of the Linux server terminal](#)

[Duration of Exam](#)

[Language](#)

[Exam Scoring and Notification](#)

[Exam Results - Pass](#)

[Exam Results - No Pass](#)

[Exam Rescoring Requests](#)

[Retake Policy](#)

[Exam Rules and Policies](#)

[Testing Location Rules](#)

[Candidate Conduct Rules During Exam](#)

[Policy on Tools and Resources Allowed During Exams](#)

[Policy on Warnings and Exam Terminations](#)

[Exam Misconduct](#)

[Certificates and Certification](#)

[Certificate](#)

[Certification Verification Tool](#)

[Certification Badges](#)

[Certification Expiration](#)

[Certification Revocation](#)

[Certification Renewal Requirements](#)

[Professional Code of Conduct](#)

[Exam Preparation](#)

[Examination Content Outline](#)

[Studying for the Exam](#)

[Other Resources](#)

[Appeals](#)

[Appeals policy](#)

[Appeals Decisions](#)

[Copyright](#)

[Customer Support](#)

Overview

About The Linux Foundation Certification Program

The Linux Foundation is a non-profit consortium dedicated to fostering the growth of Linux. Founded in 2007, The Linux Foundation sponsors the work of Linux creator Linus Torvalds and is supported by leading Linux and open source companies and developers from around the world.

The Linux Foundation's Certification Program was created in response to a need in the marketplace for Linux-based certification that is performance-based, available anywhere in the world, and distribution-flexible. With these as its guiding principles, The Linux Foundation developed exams intended to certify the foundational skills of a Candidate and allow them to build on that foundation with additional credentials for the particular distributions they find themselves using.

Scope of Certifications

The Linux Foundation offers a broad, distribution-flexible certification program that allows users to demonstrate their competence in a hands-on, command-line environment. The purpose of the Linux Foundation Certified System Administrator (LFCS) and Linux Foundation Certified System Engineer (LFCE) Certifications is to provide assurance that Certificate holders have the skills, knowledge and competency to perform the responsibilities of Linux system administrators and Linux system engineers.

To achieve Certification, a Candidate will need to pass a performance-based Exam using their choice of 2 available distribution options: CentOS or Ubuntu. For exam security, candidates need to verify their identity and are monitored by a proctor during the exam session via streaming audio, video, and screensharing feeds. The screensharing feed allows proctors to view candidates' desktops (including all monitors). The audio, video, and screensharing feeds will be stored for a limited period of time in the event that there is a subsequent need for review. Certification is issued upon a Candidate passing the required Exam.

Linux Foundation Certified System Administrator (LFCS) Certification focuses on the skills required to do basic to intermediate system administration from the command-line for systems running Linux. Linux Foundation Certified System Administrators are knowledgeable in the operational support of Linux systems and services. They are responsible for first line troubleshooting and analysis, and decide when to escalate issues to engineering teams. Candidates who pursue this Certification are required to be proficient in the [content domains and competencies](#) listed in the exam details section.

Linux Foundation Certified Engineers (LFCEs) possess a wider range and greater depth of skills than Linux Foundation Certified System Administrators. LFCEs are responsible for the design and implementation of system architecture. They provide an escalation path and serve as

Subject Matter Experts (SMEs) for the next generation of system administration professionals. Candidates who pursue this Certification are required to be proficient in the [content domains and competencies](#) listed in the exam details section

Candidate Requirements

Testing Equipment: Hardware and Environment

Exams are delivered online and closely monitored by proctors via webcam, audio and remote screen viewing. Candidates must provide their own front-end hardware to take exams, including a computer with:

- Chrome or Chromium browser
- reliable internet access
- webcam
- microphone

The workstation (e.g. desk or table) on which the hardware (e.g. desktop or laptop) is placed must, aside from the required hardware, reveal a clean surface with no obstructions overhead or underneath. Candidates should ensure that their webcam is capable of being moved in case the proctor requests that the Candidate pan their surroundings to check for potential violations of exam policy.

- If multiple Candidates are taking an exam at the same time in one location, then at least four feet (1.2 meters) of empty space on all sides must be enforced or privacy partitions must be installed.

Hardware Compatibility Check

Candidates should run the [compatibility check tool](#) provided by the Exam Proctoring Partner to verify that their hardware meets the minimum requirements. The tool is located at <https://www.examslocal.com/ScheduleExam/Home/CompatibilityCheck>. Select “Linux Foundation” as the Exam Sponsor and “LFCS” or “LFCE” as the Exam. (At this time, only Chrome and Chromium browsers are supported.)

Candidate Identification and Authentication

Candidates are required to provide a non-expired Primary ID that contains Candidate’s photograph, signature and full name (see examples of acceptable forms of ID in the table below).

If the Candidate’s full name on their Primary ID contains non-latin characters, then the Candidate must ALSO provide a non-expired Secondary ID containing their full name in Latin Characters and signature, OR a notarized English translation of their Primary ID along with the non-latin character Primary ID.

| Primary ID (non-expired and including photograph and signature) | Secondary ID (non-expired and including signature with Candidate name in Latin characters) |
|--|---|
| Passport Government-issued driver's license/permit Government-Issued local language ID (with photo and signature) National Identity card State or province-issued identity card | Debit (ATM) Card Credit Card Health Insurance Card U.S. Social Security Card |

Sanctioned Countries

Exams may be administered to citizens of a sanctioned country listed below PROVIDED the citizens are tested OUTSIDE the sanctioned country and their exam registration and current ID show an address OUTSIDE the sanctioned country.

- Cuba
- Iran
- Syria
- Sudan
- North Korea
- Crimea Region of Ukraine

If you have questions about whether your photo ID is acceptable please contact:
certificationsupport@linuxfoundation.org.

Eligibility

Candidates must test as an individual. Certification is only available for natural persons, not corporations or other legal entities.

Age

Candidates must be 16 years of age or older to be eligible for testing or Certification. Candidates under the age of 16 years old are considered underage minors and are not eligible for testing or Certification even with parental consent. The Linux Foundation reserves the right to impose additional restrictions to comply with local data protection laws.

Accommodations for Special Needs

If a Candidate has special needs that need to be taken into account during Exam administration, they must notify The Linux Foundation at least two (2) weeks in advance so any accommodating measures can be arranged.

Statement of Non-Discrimination

The Linux Foundation endorses the principles of equal opportunity. Eligibility criteria for Certification as a Linux Foundation Certified System Administrator (LFCS) and a Linux Foundation Certified Engineer (LFCE) are applied equally to all individuals regardless of age, race, religion, gender, national origin, veteran status, or disability.

Certification and Confidentiality Agreement

Candidates are required to accept the terms of [The Linux Foundation Certification and Confidentiality Agreement](#). This is a legally-binding agreement that applies to all Exams. Acceptance and adherence to this agreement is required in order to be exposed to the Exam and to be officially Certified. Candidates must first accept the terms and conditions of [The Linux Foundation Certification and Confidentiality Agreement](#) **during the registration process and again prior to testing.**

Failure to accept the terms of this Agreement will result in a terminated Exam and forfeiture of the entire Exam fee.

Exam Registration

Registering for an exam gives users the eligibility to schedule and then take the exam. Registering does not equal scheduling. Registration must be completed before scheduling is possible.

To register for an Exam, go to the webpage for the desired Certification Exam –

LFCS: <http://training.linuxfoundation.org/certification/lfcs>

LFCE: <http://training.linuxfoundation.org/certification/lfce>

Click the Register for Exam button to go to the checkout page for the exam

Users must login with their LFID, or create an LFID if one does not already exist, to complete the checkout process

During checkout, users will additionally be prompted to [select a Linux distribution](#) for their Exam, enter payment information, and read and accept the Terms and Conditions for Exam

Registration and [The Linux Foundation Certification and Confidentiality Agreement](#) in order to complete checkout.

When checkout is successfully completed, Candidates will be redirected to [My Portal](#), where they can view the next steps required to schedule and take their Exam.

(The order does take up to 15 minutes to be processed across the systems, so please wait at least 15 minutes before attempting to schedule.)

Candidates will also receive an Order Confirmation email for their Exam Registration purchase and will receive an Exam Instructions email. Unless otherwise specified, eligibility to schedule and take an Exam expires 12 months from the date of the order.

Exam Fees and Payment

The cost per Exam is \$300 USD. Only credit card payment can be used for payment of Exam fees. All major credit cards will be accepted.

Volume discounts are available for companies with multiple Candidates. Please contact the Linux Foundation for more information: certification@linuxfoundation.org

Refund Policy

Candidates have up to three (3) business days following payment of Exam registration fees or up to 24 hours prior to a scheduled Exam reservation, *whichever comes first*, to request a full refund on Exam registration fees.

Refunds will not be given and rescheduling will not be allowed in event of no-shows or if Exam is terminated early or could not be started on time due to [Exam misconduct](#).

Refund Process

Candidates should first check that they are eligible for a refund per the [refund policy](#) and then follow the appropriate process below to request a refund:

- **Candidates who have not yet scheduled an Exam reservation:** contact certificationsupport@linuxfoundation.org and provide the order number from the purchase and the Linux Foundation ID username or email address used to complete the purchase.
- **Candidates who have already scheduled an Exam reservation:** first, cancel the exam reservation at least 24 hours before the scheduled start time of the reservation. Once the reservation is canceled, contact certificationsupport@linuxfoundation.org and provide the order number from the purchase and the Linux Foundation ID username or email address used to complete the purchase. ****The Linux Foundation cannot issue a refund if there is an Exam reservation scheduled in the system.****

Distribution Selection

During the registration process, Candidates will be prompted to select a distribution for their Exam environment from these two choices: CentOS 7 or Ubuntu 18.

A Candidate may change their selected distribution as often as they wish *before* the Exam is scheduled. Once an exam is scheduled, Candidates can only change the selected distribution by submitting a distribution change request form up to three (3) business days before a scheduled Exam reservation. (Look for the Change Distribution link in the [Exam Info panel](#) of My Portal.) Candidates may submit up to two (2) such requests to change distribution. Candidates will receive a confirmation if their Distribution Change Request can be honored. Until such confirmation, Candidates should assume their Distribution Change Request is not processed and their selected distribution for the Exam has not been changed.

My Portal

Candidates can access My Portal at any time by going to <http://training.linuxfoundation.org/portal> or by clicking on the My Portal menu item from <http://training.linuxfoundation.org/>.

Once a Candidate has logged into My Portal, they will be able to view the status of their Certification efforts under the Certifications tab, as well as to download receipts for Exam registrations. Use the blue Refresh button located to the right of “Certification Status” to pull in recently made changes or if the window has been left open for an extended time. (Certain changes may require several minutes to populate, such as date and time for newly scheduled Exam reservations.)

Status Settings for Certifications

Each Certification - LFCS or LFCE - listed in the Certifications tab of the Portal will have its status displayed to the far right.

The status settings that may appear for Certifications include:

| Status | Description |
|-----------------------------------|--|
| Not Certified - Register for Exam | User has not yet purchased registration for a Certification Exam. Use the “Register for Exam” link to purchase registration for an Exam and start the process towards getting Certified. |
| Items Pending | User has registered for a Certification Exam, but still needs to complete items towards getting Certified. When |

| | |
|------------|--|
| | this status is on, an Exam Prep Checklist panel will be presented on the left that guides the user through the remaining items requiring completion. An Exam Info panel will be presented on the right that provides more details on an Exam as the steps in the Exam Prep Checklist are completed (e.g. distribution selected, Exam date and time scheduled, Exam results, etc.). |
| Not Passed | User has taken the Exam but their exam score was below the score required to pass. An Exam Info panel containing details on the Exam taken will be presented and a link to “Re-Register” for the Exam is provided. |
| Active | User has achieved or renewed Certification and expiration of Certification has not yet passed. Certificates and Badges for the specific Certifications in Active status will be available for download. |
| Expired | User achieved or renewed Certification previously, but the Certification has since expired. |
| Revoked | User’s Certification has been revoked. |

Exam Prep Checklist

If the Exam Prep Checklist is displayed, it indicates a Candidate has taken the first step of registering for an Exam, but still has more steps to complete (e.g. scheduling an exam date) before they can take the exam. Candidates should use the Exam Prep Checklist to review and complete the steps necessary to take the Exam. When items in the checklist have been completed, a green checkmark will appear next to the item. Red crosses indicate items which remain to be completed.

The items on the Exam Prep Checklist include the following:

- Register for Exam
- Check System Requirements
- Schedule Exam
- Get Candidate Handbook
- Verify Name
- Important Tips
- Take Exam

The “help” next to each item can be clicked on to get more information on a specific item/step.

Register for Exam

Register for Exam will already be checked as complete when the Exam Prep Checklist is presented.

Check System Requirements

Candidates must check that the system on which they plan to take their Exam meets the minimum requirements for taking the Exam. Clicking on the Check System Requirements link in the Exam Prep Checklist will direct a Candidate to a Compatibility Check Tool. To use the tool, the Candidate should select “Linux Foundation” as the Exam Sponsor and “LFCS” or “LFCE” as the Exam. The tool will allow the candidate to determine if their system meets the minimum requirements or if anything is needed to bring their system up to the required specifications.

The portal cannot determine the results of the Compatibility Check Tool; it can only determine if the Candidate has accessed the tool by clicking on the Check System Requirements link provided in the Exam Prep Checklist.

If the Compatibility Check Tool reveals that a Candidate’s system does not meet minimum requirements, it is the Candidate’s responsibility to bring their system up to the necessary specifications or to procure a system that does meet the minimum requirements **before** they take their Exam.

Candidates may access the Check System Requirements link even after it has been marked as complete. This allows Candidates to re-check a system after changes have been made or to check new systems.

Schedule Exam

Use the Schedule Exam link to be directed and automatically logged in to the Exam Proctoring Partner’s scheduling site. Once authenticated and logged in, Candidates may search for the Exam by Exam title, code (LFCS or LFCE) or Sponsor Name (The Linux Foundation) and they can then select from available Dates and Times* for an Exam reservation.

During scheduling, candidates will also be prompted to use the Check Compatibility Tool to confirm that their system meets minimum requirements needed for the Exam, and to read and accept the terms of [The Linux Foundation Certification and Confidentiality Agreement](#). Once all steps have been completed successfully, the Exam reservation will be confirmed. Email notification will be sent to the Candidate regarding their confirmed Exam reservation. (Candidates who have setup exclusive email whitelists should add InnovativeExams.com to their list of acceptable domains.)

***Please note that exams require a 24-hour lead time to allow for preparation of the virtual machines, so the earliest possible reservation date will be the following day.** Additionally,

the latest possible date possible in the scheduling calendar is 60 days out. If a later reservation is desired, Candidate will need to wait until their desired date is less than 60 days out to schedule.

Canceling or Rescheduling

Once Candidates have scheduled an Exam reservation, they may cancel or reschedule the reservation up to 24 hours before the start time of the reservation. Reservation changes are not possible when 24 hours or less remain before the start time. No-shows forfeit the money paid for an Exam registration.

Candidates should refer to the Cancel and Reschedule Instructions provided in the Exam reservation confirmation email from the Exam Proctoring Partner, or follow the steps below

- Login to www.examslocal.com/linuxfoundation with your Linux Foundation ID
- Click on "My Exams"
- Click on the scheduled Exam and then click on Cancel or Reschedule button

Get Candidate Handbook

All Candidates are expected to read and familiarize themselves with the Candidate Handbook. Click on Get Candidate Handbook to access the Handbook. Once the link is clicked on, the item is marked as completed. Candidates may access the Download Candidate Handbook link even after it has been marked as completed. This allows Candidates to re-download or review the Candidate Handbook at later dates if needed.

Verify Name

Candidates must click on the Verify Name link to ensure that the First and Last Name listed on their Linux Foundation ID account matches their government-issued photo ID. Make sure these values do not change before the Exam has been taken.

The First and Last Name attached to a Linux Foundation ID are provided to the Exam Proctor so that Proctors can verify the identity of the Candidate against the government-issued photo ID presented by Candidate.

Important Tips

Candidates are encouraged to review the list of top tips for a smooth Exam experience.

Take Exam

Once a Candidate has completed the necessary steps in the Exam Prep Checklist, the Take Exam link will be made available in the Checklist. At the time of their scheduled reservation, Candidates may click on this link to be automatically logged in to the Exam Proctoring Partner's site.

Alternatively, Candidates may click on the link provided in the Exam Reservation Confirmation and Reminder emails sent by the Exam Proctoring Partner or go directly to <http://www.examslocal.com/linuxfoundation>. Login with your Linux Foundation ID account when prompted.

Once logged in, click on My Exams and select the Exam from the left margin to get started.

Exam Info Panel

The Exam Info panel in My Portal provides the following details on a specific Exam registration, as well as links to perform certain actions for the Exam:

- **Download Receipt:** download receipt for the Exam registration
- **Expiration:** the last date on which exam can be taken; after this date, the candidate's eligibility to take the exam expires
- **Distribution:** the distribution that the Candidate has selected for their Exam will be displayed here
 - **"Change Distribution"** link: Candidate may use the "Change Distribution" link located in the Exam Info Panel to change a Distribution selection before an Exam Date has been scheduled or to request a change to their Distribution selection after an Exam Date has been scheduled. See [Distribution Selection](#) for more information.
- **Exam Date:** once a Candidate schedules an Exam reservation, the date and time of that reservation will be displayed here; if Candidate has not yet scheduled an Exam, "Unscheduled" will be displayed
 - **"Schedule Exam"** link: Candidate may use the Schedule Exam link to access the Exam Proctoring Partner's scheduling site in order to [schedule an Exam Date](#).
 - **"Take Exam"** link: on the scheduled Exam date and time, the Candidate may use the Take Exam link to login to their Exam session on the Exam Proctoring Partner's site.
- **My Score*:** the score that the Candidate earned on the Exam
- **Score Needed to Pass*:** the minimum score needed to pass the Exam

*These items only appear once an exam has been graded.

Certification Info Panel

When a Candidate has passed an Exam and successfully achieved Certification, a Certification Info panel will be made available to the Candidate in My Portal. The Certification Info panel provides the following details on the Candidate's Certification:

- **Certificate ID Number:** this is the ID number listed on the Candidate's Certificate

- **Achieved/Renewed On:** this is the date that the Candidate achieved or if applicable, renewed their Certification
- **Expires On:** the date on which Candidate's Certification is scheduled to expire
- **My Score:** the score that the Candidate earned on the Exam they passed to achieve Certification
- **Score Needed to Pass:** the minimum score needed to pass the Exam
- Actions Panel
 - Download **Certificate**
 - Download **Certification Badges**
 - Download **Exam Receipt**

Exam Description

Certification exams from the Linux Foundation require the Candidate to use the command line to demonstrate their competencies across the specified domains.

Exams are delivered entirely online and closely monitored by proctors via webcam, audio, and remote screen viewing. This gives Candidates the freedom to take their exam at the place and time of their choosing (subject to meeting the conditions stipulated in [Candidate Requirements](#) section of this document).

There is no need for the Candidate to install or have Linux running on their local machine. Instead, a server is provisioned for the Candidate's use during the exam. (The server is provisioned with the distribution selected by the Candidate.) The Candidate logs into an exam console via a web browser; within that console, the Candidate will communicate with the proctor, view exam tasks/questions, and access the server provisioned for their use during the exam.

Launching Exam

At the time of a Candidate's scheduled Exam reservation, the Candidate can login to [My Portal](#) and click on the [Take Exam](#) link to be directed to the Exam Proctoring Partner's site. Candidates may also go to the URL provided in the confirmation and reminder emails from the Exam Proctoring Partner, which is <https://www.examslocal.com/linuxfoundation>. The Candidate will be prompted to authenticate via their Linux Foundation ID login.

Once authenticated and logged in, the Candidate should click on My Exams, select the appropriate Exam listed in the left margin, and click the Launch Exam button (see [Reporting Issues with Launching Exam](#)). Clicking the Launch Exam button will open the Exam Console in a new browser tab and the Candidate may then close all other tabs and browsers.

Once in the Exam Console, the Candidate will be prompted through a check-in process by the proctor. The check-in process includes the following:

- share screen, webcam and microphone
- present valid government-issued photo ID that matches the name listed on the Exam reservation (the Proctor will request that Candidate hold up their ID to the webcam)
- read and accept the [Exam Rules](#) and the terms and conditions of [The Linux Foundation Certification and Confidentiality Agreement](#)

Upon completing the check-in process and when the Proctor has verified that the Candidate's workstation environment and surroundings meet the requirements stipulated in [Candidate Requirements](#), the Proctor will release the Exam so that the candidate can view exam content and begin working in the server. The countdown timer for the Exam does not start until the Proctor releases the Exam.

Reporting Issues with Launching Exam

If the Launch Exam button does not appear or is not accessible within the 5-minute period following the Exam reservation's scheduled start time, the Candidate should contact the Exam Proctoring Partner's Support team using one of the following options:

- "Online - Click here to get help" - this opens the chat support function
- Support menu item in the top nav bar - call one of the support phone numbers

The Candidate must contact the Exam Proctoring Partner's Support team within 15 minutes of the scheduled start time for their reservation to report an issue. Otherwise, they will be marked as a "No Show" for the Exam.

Exam Console Format

The Exam Console is composed of three main areas:

1. **Exam Console functions** (menu bar *across the top* of the exam console) – houses functions to turn on screen- and webcam-sharing, start chat with proctor, and to access Exam Controls such as options to **Show Testing Rules**, **Pause** or **End Exam**, **Refresh Exam Window**, **Reset Console**, and access the **Notepad**. (See [Guidelines and Tips for Exam Console Functions in Top Menu Bar](#) below.)
2. **Content Panel** (on *left*) – contains Exam Tasks (the exam questions etc.); describes the point value of a task ; and displays a timer for the Exam.
3. **Linux Server Terminal** (on *right*) – panel that displays the terminal of a Linux server. (See [Guidelines and Tips for Use of the Linux Server Terminal](#) below.)

Candidates will need to perform the Exam Tasks listed in the Content Panel by executing command-line tasks on the Linux server terminal. Proctors will be able to see the Candidate's desktop and view the Candidate through the webcam.

Guidelines and Tips for Exam Console Functions in Top Menu Bar

- To turn on webcam-sharing, click **Camera** from top menu.
- To turn on screensharing, click **Desktop** from top menu.
- To ask the Proctor a question during the Exam, select **Live Chat** from top menu .
- Clicking Exam Controls from top menu offers the following choices:
 - **Show Testing Rules**: select this to review the exam rules during an exam
 - **Refresh Exam Window**: use to refresh the [Linux Server Terminal](#) without reloading the entire webpage.
 - For example, if the Linux Server Terminal is experiencing latency issues that are not affecting the other functions of the Exam Console or Content panel, clicking the Refresh Exam Window button may help.
 - **Reset Console**: use to reset the HTML terminal application and to flush all firewall settings on the Candidate's server.
 - **Pause Exam**: use to request break from Proctor. (Note: the exam timer continues to run even if the Proctor approves a break request.)
 - **End Exam**: Candidate can use this to indicate to proctor they are ready to end the exam
 - **Notepad**: use this to make notes during the exam, e.g. keeping a list of items to revisit. Please note that notes entered here will not be retained or accessible after the exam has ended.

Guidelines and Tips for Use of the Content Panel

- Exam tasks instruct you to complete a step, or a series of steps.
- Candidates can navigate between exam tasks by clicking on the Previous or Next button, or they can jump to a specific exam task by selecting the task number from the drop-down list.
- Candidates can *flag* an exam task by clicking the “*Flag this to return*” box, to remind them to finish/review the task.

The task dropdown list will indicate the task you have *flagged*.
When you have revisited this task, you can click *Unflag*.
- Exam tasks contain text that is formatted as copyable values (e.g. file names, port numbers, etc). The copyable values **highlight** when a Candidate’s cursor hovers over formatted text. Candidates can click on the highlighted value within the Content panel to *Copy* the value & then *Paste* it directly into the terminal window.
- The timer bar is set to run for 2hrs. Please note:
 - Requesting a break via the Pause Exam function will not stop the timer.
 - The Proctor keeps the ultimate timer for the exam.
 - The Candidate should check with the Proctor for a true reading of time remaining in the exam if there is any doubt or in cases where the timer has been reset.

- Candidates may switch between available languages during the exam by clicking on the “Select Language” drop down list.

Guidelines and Tips for Use of the Linux server terminal

These instructions can also be pulled up during the Exam by typing “man lf_exam” in the command line.

1. Root privileges can be obtained by running 'sudo -i'.
2. You should avoid rebooting node-1, as the supporting infrastructure will take around 15 minutes to start, and stabilize. You are free to reboot any node other than node-1 at any time.
3. Do not stop or tamper with the certerminal or sshd configuration and process on node-1 as this will END YOUR EXAM SESSION.
4. Do not block incoming ports 8080/tcp, 4505/tcp and 4506/tcp. This includes firewall rules that are found within the distribution's default firewall configuration files as well as interactive firewall commands.
5. Use Ctrl+Alt+W instead of Ctrl+W.
 - Ctrl+W is a keyboard shortcut that will close the current tab in Google Chrome.
6. Ctrl+C and Ctrl+V are not supported in your exam terminal
 - For Linux: select text for copy and middle button for paste (or both left and right simultaneously if you have no middle button).
 - For Mac: ⌘+C to copy and ⌘+V to paste.
 - For Windows: Ctrl+Insert to copy and Shift+Insert to paste.
7. Installation of services and applications included in this exam may require modification of system security policies to successfully complete.
8. Only a single terminal console is available during the exam. Terminal multiplexers such as GNU Screen and tmux can be used to create virtual consoles.
9. To change the font size in the terminal please use the native Chrome keys: Ctrl and '+' or Ctrl and '-'.
10. You should avoid changing the locale of the system during your exam.
11. You should not manipulate the firewall of node-1, or tamper with any of the running lxd or dnsmasq processes.

Duration of Exam

Candidates have 2 hours to complete an Exam. As Candidates proceed through the Exam, a Timer Bar is displayed at the top of the Content panel. The timer does not start until Proctor has released the Exam to Candidate (see [Launching Exam](#)). Additionally, the timer does not stop during requested breaks, and can sometimes reset to the beginning balance when candidate's connection to exam console has to be restarted.

Candidates can confirm the time remaining with the Proctor directly.

Language

Exam tasks (i.e. exam questions) are available in English, Simplified Chinese and Japanese. When an exam is launched, the exam tasks will default to the preferred language setting

detected in the Candidate's browser. If the preferred language is not available for that exam, then the exam tasks default to English.

Regardless of the default language presented at the start of the exam, candidates may switch between available languages during the exam by clicking on the "Language Control Dropdown List" in the Content Panel of the exam console.

All other aspects of the exam (e.g. the communication with proctor and the command-line terminal) will be presented and supported in English only.

Exam Scoring and Notification

Exams are scored automatically, usually within 24 hours of completion. Results will be emailed 36 hours from the time that the Exam was *completed*. Results will also be made available on My Portal.

Exams are graded for results. There may be more than one way to perform a task on an Exam and unless otherwise specified, the Candidate can pick any available path to perform the task as long as it produces the correct result.

The Linux Foundation will use statistical analyses of Exam data ("Data Forensics") to identify patterns indicative of test fraud, including cheating and piracy. The Linux Foundation reserves the right to invalidate an Exam score and Certification result if review of an Exam record reveals scoring inaccuracies (attributable to The Linux Foundation or the Exam Proctoring Partner) or response patterns indicative of possible misconduct or measurement error. If The Linux Foundation determines that an Exam score is invalid due to issues that are beyond the control of the Candidate, the Candidate will be advised of options to retake the Exam at no charge.

Exam Results - Pass

Upon passing an Exam and if all other requirements for Certification have been met, Candidates will be granted the Certification relevant to the Exam. For Example, passing the LFCS Exam means a Candidate will be granted LFCS Certification.

Formal notice of successful Certification from The Linux Foundation will be emailed within 3 business days of meeting program requirements. The notice will provide a Certificate ID number and include a pdf copy of the Certificate, in addition to instructions on accessing additional Certification Marks.

Exam Results - No Pass

If eligible per the Retake Policy, candidates who do not achieve a passing score on their first attempt will be granted a free retake. Be sure to review the [Retake Policy](#) in full to understand eligibility and deadlines for the free retake. (Exams taken on or before March 1, 2015, are not

eligible for free retake.) Instructions will be provided in the Exam Results notification on how to redeem the free retake.

If the free retake has been exhausted or if the exam is not eligible for free retake, Candidates may register and pay to take the Exam again, with no discount given for such additional retakes.

Candidates may also wish to consider taking optional training to help them prepare for the Certification Exam.

Exam Rescoring Requests

Though we cannot guarantee the availability of rescoring for an exam server, Candidates may make a request for an Exam to be rescored up to 2 days following the date on which the Exam was taken. The fee for rescoring an Exam is \$50 USD and may be paid via credit card.

Rescoring requests should be made via email to certificationsupport@linuxfoundation and must include the Candidate name, Linux Foundation ID, Exam title, and date Exam was taken.

If the rescoring results in a change from No Pass to Pass on the Exam, the rescoring fee will be refunded.

Retake Policy

For Linux Foundation Certification Exams purchased directly from The Linux Foundation and not marked as SINGLE-ATTEMPT or SINGLE, one (1) free retake per Exam purchase will be granted in the event that a passing score is not achieved and Candidate has not otherwise been deemed ineligible for Certification or retake. Unless otherwise indicated in the exam order, the free retake must be completed within 12 months of the date of the original Exam purchase. After the free retake has been exhausted or the deadline to complete the free retake has passed, Candidates may register and pay to take the Exam again, with no discount given for such additional retakes.

For purchases made through an Authorized Training Partner, contact the specific Partner regarding eligibility for a free retake.

For exam purchases marked as SINGLE-ATTEMPT or SINGLE, only a single attempt will be granted.

Exam Rules and Policies

Candidates MUST start their exam no later than 15 minutes after the scheduled start time. If a candidate does not start their exam within 15 minutes of the scheduled start time, they will be

automatically marked as a no-show and no refund or rescheduling will be allowed. (See [Reporting Issues with Launching Exam.](#))

Before the Exam can be released, Candidates are presented with rules regarding their [testing location](#) and [candidate conduct](#) during the Exam, and with the policy on [warnings and Exam terminations](#). The Proctor cannot release the Exam until the Candidate has indicated that they have read, understood and accept these rules.

Testing Location Rules

- Room must be quiet, private and well lit
- Bright lights or windows should not be positioned behind the Candidate
- Testing from public spaces such as coffee shops, stores, etc. is not allowed
- No one other than the Candidate can be present in the room
- Desk must be clear of all notes and electronics

Candidate Conduct Rules During Exam

- Candidate should review the Exam content instructions that are presented in the command line terminal; Candidate can also type “man lf_exam” in the command line to view instructions again at any time during the Exam
- Candidate is not allowed to communicate with anyone other than the Proctor during the Exam
- Candidate is not allowed to read the questions out loud, to themselves, during the exam
- Candidate is not allowed to leave their desk or step out of view of the webcam, unless they have been granted specific permission by the Proctor
- Candidate is not allowed to eat, drink (except clear liquids as per rule below), or chew gum
- Candidate is permitted to drink clear liquids from a label-free bottle or a clear glass
- Candidate is not allowed to wear any electronic device in their ears, on their face or on their body*
- Candidate is not allowed to navigate away from the Exam console screen
- Candidate is not allowed to have other applications or browser tabs/windows running except the one on which the Exam is being shown
- Candidate is not allowed to look away from their Exam console screen for extended periods of time
- Candidate must refrain from making excessive and/or repetitive noise
- Candidate must refrain from covering their mouth and/or face.
- Candidate is not allowed to write or enter input on anything (whether paper, electronic device, etc.) outside of the Exam console screen
- Candidates must comply with any requests from the Proctor. If Candidate fails to comply, the Exam will be terminated

*unless medically necessary

Policy on Tools and Resources Allowed During Exams

The following tools and resources are allowed during the Exam as long as they are used by Candidate to work independently on exam tasks (i.e. not used for 3rd party assistance or research) and are accessed from within the Linux server terminal on which the Exam is delivered (resources that cannot be accessed from within the terminal are not allowed):

- Man pages
- Documents installed by the distribution (i.e. /usr/share and its subdirectories)
- Packages that are part of the distribution (may also be installed by Candidate if not available by default)

The following resources are forbidden during the Exam:

- External web pages
- Browsing the Internet, including through the use of installed tools such as Vim and Emacs
- Use of devices other than the Exam desktop
- Notes
- Documentation
- Notepads
- Course manuals
- Devices external to the computer on which they are taking the Exam, including but not limited to: mobile phones, PDAs, wearable computers, smart glasses, smart watches

Policy on Warnings and Exam Terminations

Certain kinds of violations will result in a warning from the Proctor, while certain other violations result in IMMEDIATE TERMINATION OF THE EXAM WITHOUT WARNING.

If a warning is issued by the Proctor, the Exam will be paused until the Candidate is able to amend or resolve the observed violation.

If a Candidate is found to be in violation of the same rule more than twice or is found to be in violation more than four times on any combination of rules, the Exam will be terminated immediately.

The following actions will result in IMMEDIATE TERMINATION OF THE EXAM WITHOUT WARNING:

- Candidate refuses to comply with a Proctor request
- Candidate is observed to be copying Exam content, whether with software, external device(s), manual transcription, or other means
- Candidate steps out of view of the webcam for extended amount of time without the Proctor's permission

- Someone other than the Candidate is observed to complete or assist with any part of the Exam
- A discrepancy exists between the input on a Candidate's screen and the Candidate's observed activity

Exam Misconduct

Candidates engaging in Exam Misconduct will not be allowed to complete the Exam or receive an Exam result. Such Candidates may also be barred from taking any other Linux Foundation Certification Exam and if applicable, may have their Linux Foundation Certification withdrawn. Refunds will not be given and rescheduling will not be allowed if an Exam is terminated early or could not be started on time due to Exam misconduct. Misconduct may, at any time, result in application of sanctions.

Examples of Exam Misconduct include but are not limited to:

- Failing to comply with the [Exam Rules and Policies](#)
- Disseminating actual Exam content by any means, including, but not limited to, web postings, formal or informal test preparation or discussion groups, chat rooms, reconstruction through memorization, study guides, or any other method, as well as providing Exam content or information to any person not expressly authorized by Linux Foundation to receive such content or information (including but not limited to a Linux Foundation employee who is not part of the Certification Program staff).
- Copying or otherwise transferring, modifying, making derivative works of, reverse engineering, decompiling, disassembling, or translating any Exam or any part thereof.
- Seeking and/or obtaining unauthorized access to Examination materials (this includes using recollections of others of materials from previous administrations of any Exam, a.k.a. braindump material, and/or any unauthorized publication of Exam questions with or without answers)
- Using falsified or altered Certificates, score reports, or other documents or electronic media to misrepresent Certification status
- Allowing another person, or an organization in which you are not actively involved, to use your Certification credentials to obtain employment or promotions
- Providing falsified information, documentation or statements as a means of a false identity, false address or solicitation of someone to take a test on another's behalf
- Giving, receiving, or obtaining unauthorized assistance during the Examination or attempting to do so
- Making notes of any kind during the Exam, whether on paper or via digital means
- Possession of non-authorized items during the Exam
- Providing or accepting improper assistance on your Exam or Exams taken by others
- Removing or attempting to remove Exam material (in any format)
- Intentionally or otherwise repeatedly causing a disturbance of any kind during the Exam
- Tampering with the Exam server and its environment or attempting to use it for any function other than taking a Linux Foundation Exam

- Modifying and/or altering the results and/or score report for this Exam or any other Exam record
- Violating the Exam retake policy described on the LF website at <https://training.linuxfoundation.org/about/policies/certification-exam-retake-policy/>
- Using computer scripts to register for Exams
- Misconduct as determined by Data Forensics (see “[Exam Scoring and Notification](#)”)
- Failing to adhere to any Linux Foundation or Exam Proctoring Partner policy, procedure, rule, or instruction
- Using profanity, threatening to harm, bully or in any way harass any LF or Exam Proctoring Partner employee or contractor (whether verbally or in writing, including through electronic communications or external web postings)
- Otherwise violating the terms of [The Linux Foundation Certification and Confidentiality Agreement](#)

Certificates and Certification

Certified Candidates (“Certificants”) receive a Certificate ID number and a Certificate indicating their successful completion of the requirements necessary to achieve the title, LFCS or LFCE, indicated on their Certificate.

LFCS Certifications awarded on or after April 10, 2018 (based on LFCS v3 release) will expire 36 months from the date that a Certificant successfully passes their Certification Exam, all other LFCS Certifications will expire 24 months from the date that a Certificant successfully passes their Certification exam, unless revoked earlier for cause or Certificant successfully completes Certification renewal requirements.

LFCE Certifications awarded on or after June 10, 2018 (based on LFCS v3 release) will expire 36 months from the date that a Certificant successfully passes their Certification Exam, all other LFCE Certifications will expire 24 months from the date that a Certificant successfully passes their Certification Exam, unless revoked earlier for cause or Certificant successfully completes Certification renewal requirements.

The primary method for confirming the status of a Certification is to use The Linux Foundation’s [Certification Verification Tool](#).

While their Certification status is active,

- LFCS Certificants may use the term Linux Foundation Certified System Administrator to refer to themselves
- LFCE Certificants may use the term Linux Foundation Certified Engineer to refer to themselves
- Certificants may use the Marks (e.g. badges) applicable to their Certification on their stationery, business card, personal Website, etc., to indicate their status

Certificate

The LFCS and LFCE Certificates list the following information:

- Name of the Candidate who obtained the Certificate
- Title of Certification (e.g. Linux Foundation Certified System Administrator)
- Certificate ID number
- Date of Completion (i.e. date Exam was passed)

Certification Verification Tool

The Linux Foundation provides a verification tool on its website that allows users (e.g. potential employers or clients) to validate the status of an individual's Certification. To submit a query on this verification tool, a user must enter the Certificate ID number and the Last Name listed on the Certificate of a successfully certified individual. (The Last Name must be entered exactly as listed on the Certificate, including any special characters.) The result for a successfully submitted query will include the full name of Certificant, Certification title and status (active/inactive), and the date that the Certification was achieved.

Certification Badges

The Linux Foundation has partnered with Credly's Acclaim platform to provide candidates with a digital version of their credentials. Badges will be issued to everyone who passes one of our certification exams and can be used in email signatures or digital resumes, as well as on social media sites such as LinkedIn, Facebook, and Twitter. Further details of our Certification Badges are available [here](#).

Certification Expiration

LFCS Certifications awarded on or after April 10, 2018 (based on LFCS v3 release) will expire 36 months from the date that the program Certification requirements were met by the candidate. All other LFCS Certifications will expire 24 months from the date that the Program Certification Requirements were met.

LFCE Certifications awarded on or after June 10, 2018 (based on LFCS v3 release) will expire 36 months from the date the Program Certification requirements were met by the candidate. All other LFCE Certifications will expire 24 months from the date that the Program Certification Requirements were met.

Certificants must meet [renewal requirements](#) prior to the expiration date of their current Certification in order to maintain active Certification.)

Certification Revocation

The Linux Foundation will revoke Certification if you fail to comply with Certification renewal requirements. In addition, The Linux Foundation may, in its sole discretion, revoke any and all Certifications you may have earned, and permanently ban you from earning future Certifications, under any of the following circumstances:

- Threatens to harm, bully or in any way harass any Linux Foundation or Exam Proctoring Partner employee or contractor (whether verbally or in writing, including through electronic communications or external web postings);
- Breaches the terms and conditions of [The Linux Foundation Certification and Confidentiality Agreement](#);
- Is determined by The Linux Foundation to have undertaken or participated in [Exam Misconduct](#) or violated the [Professional Code of Conduct](#);
- Has been convicted of a crime that The Linux Foundation deems, in its sole discretion, in any way harms or affects The Linux Foundation's or the Program's reputation, goodwill or security; or
- Has lost or settled a civil case in which The Linux Foundation is the plaintiff and the claim arose from any alleged damage to The Linux Foundation, its brand, goodwill or reputation.

Certification Renewal Requirements

Candidates may keep Certification valid by completing one of the renewal requirement options below. Renewal requirements must be completed prior to the expiration of the Certification.

- Retake the exam. Candidates have the option to retake and pass the same exam to keep their Certification valid. The Certification will become valid for 3 years starting on the date the exam is retaken and passed.
- Achieve a higher-level Certification. On the date that a Candidate with an active LFCS Certification achieves LFCE Certification, the expiration of their LFCS Certification will be extended for 3 years so that both their LFCE and LFCS Certifications expire on the same date. The date on which their LFCS Certification expiration is extended (i.e. renewed) becomes the Renewal Date. (For example, a Certificant holds an active LFCS Certification expiring on August 20, 2019. The Certificant then achieves LFCE Certification on March 1, 2019. Their lower-level LFCS Certification will be extended for 3 years effective March 1, 2019 and both their newly achieved LFCE and renewed LFCS Certifications will have the same expiration date of March 1, 2022. March 1, 2022 becomes the Renewal Date for their LFCS Certification.)

Professional Code of Conduct

Candidates, before and after Certification, shall:

- Perform duties with objectivity, due diligence and professional care.

- Access private information on computer systems only when it is necessary in the course of technical duties. Maintain the privacy and confidentiality of information obtained in the course of your activities unless disclosure is required by legal authority. Such information shall not be used for personal benefit or released to inappropriate parties.
- Provide service in your areas of competence, being honest and forthright about any limitations of their experience and education. Maintain competency in your respective fields and agree to undertake only those activities you can reasonably expect to complete with the necessary skills, knowledge and competence.
- Strive to ensure the necessary integrity, reliability, and availability of the systems for which you are responsible.
- Design and maintain each system in a manner consistent with the purpose of the system to the organization.
- Inform appropriate parties of the results of work performed including the disclosure of all significant facts known to you that, if not disclosed, may distort the reporting of the results.
- Not engage in deceptive financial practices such as bribery, double billing, or other improper financial practices.
- Obey all laws governing your work, unless, in exceptional circumstances, such compliance is inconsistent with the public interest.
- Promote no interest adverse to your employer or client, unless a higher ethical concern is being compromised; in that case, inform the employer or another appropriate authority of the ethical concern.
- Avoid entering into conflicting obligations with one client, such as obligations of confidentiality, availability for work, or otherwise, which conflict with obligations to another client.
- Not unlawfully discriminate or knowingly permit unlawful discrimination on the basis of race, national origin, sex, sexual orientation, religion, age or disability in: (1) hiring, promoting, discharging, or otherwise determining the conditions of employment of any person; or (2) accepting or terminating representation of any client.
- Identify, document, and report significant issues of social concern, of which you are aware, in software or related documents, to the employer or the client.
- Ensure that you have no other professional or contractual obligations that are inconsistent with this Code of Conduct.

Exam Preparation

Examination Content Outline

An overview of domains and competencies for the Linux Foundation Certified System Administrator and Linux Foundation Certified Engineer Exams can be found in the Exam Details section of the following webpages:

LFCS: <http://training.linuxfoundation.org/certification/lfcs>

LFCE: <http://training.linuxfoundation.org/certification/lfce>

Studying for the Exam

The Linux Foundation's Certification Exams are performance-based, which means the only way to 'study' for them is to practice, practice, practice. The overview of domains and competencies listed for each Certification Exam provides guidance on the topics covered in an Exam. Candidates are encouraged to gain as much hands-on experience as possible in order to build mastery using the command line (since the Exam terminal does not use the Graphical Interface). As indicated in [Other Resources](#), there are many forums, both online and offline, which prospective Candidates may find useful in building skills on their chosen distribution.

Some Candidates, especially those who are newer to Linux, may also find it valuable to complete a formal training course. The Linux Foundation provides optional test preparation courses that cover the relevant material. These are prepared by an independent team using the publicly available content outline for Exams. They do not claim to provide specific coverage of Exam items, nor do they claim to make it faster, cheaper or easier to pass the Exam.

Candidates may also choose training from 3rd-party training providers, all of whom have access to the same content outline as the Linux Foundation course development team.

Other Resources

The Linux Foundation's Certification Preparation Guide provides a list of free and paid resources to help Candidates prepare for Exams. While by no means exhaustive, it provides several options for Candidates to consider if they are looking to strengthen their knowledge and experience in certain areas. A free copy of the guide is available at <https://training.linuxfoundation.org/download-free-certification-prep-guide>.

Appeals

Appeals policy

In the event that sanctions are imposed, e.g. for [Exam Misconduct](#), Candidates will have thirty (30) calendar days from the date of their notification letter to file an appeal. A Certification Appeals Submission Form will also be provided. If the Candidate believes they have valid grounds for an appeal, they may complete the submission requirements for the Certification Appeals Submission Form and submit it as instructed.

Incomplete submissions and submissions received after the thirty (30) calendar period will not be considered. If The Linux Foundation determines that a written request for appeal is filed within the allowable time and follows required guidelines for consideration, and the original sanction decision is upheld by The Linux Foundation, such appeal and the information submitted by the Candidate will be forwarded to the Linux Foundation Certification Appeals Committee for consideration.

Appeals Decisions

You may expect to receive a written response from The Linux Foundation within ninety (90) calendar days after the Appeals Committee meets. Decisions rendered by the Appeals Committee are final.

Copyright

All Exam questions are the property of The Linux Foundation and are protected by copyright. Most national laws provide severe civil and criminal penalties for the unauthorized reproduction, distribution, or exhibition of copyrighted materials.

Customer Support

For questions regarding The Linux Foundation's Certification Program, please visit the support page at <http://training.linuxfoundation.org/certification/certification-information-and-faq>. If your question is not answered there, you may submit a support ticket by sending an email to certificationsupport@linuxfoundation.org.